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US 3331182
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(54) **Taped multibags**

(57) A series of packaging bags is provided that comprises a plurality of discrete multiple-bag units 51a, 51b etc, each including a chain of separable side-sealed bags 26, 27, said plurality being sequentially arranged on and removably affixed to a carrier 52a, 52b. The multiple-bag units now imbricated or spaced longitudinally on carrier tapes with the

bags disposed longitudinally or laterally and bags of each unit are separable from one another along lines of perforations. A method of packaging is also provided, comprising feeding said series of multiple-bag units to a loading station; and, as each unit is presented at the loading station, inflating the bags of said presented unit at the loading station; loading the bags of said presented unit with product; and advancing said unit to a bag closing station.

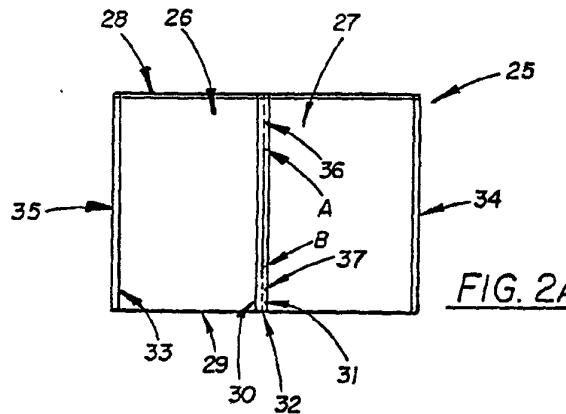


FIG. 2A

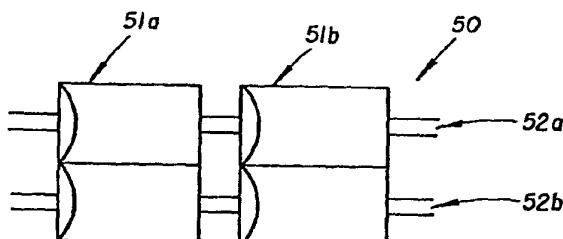
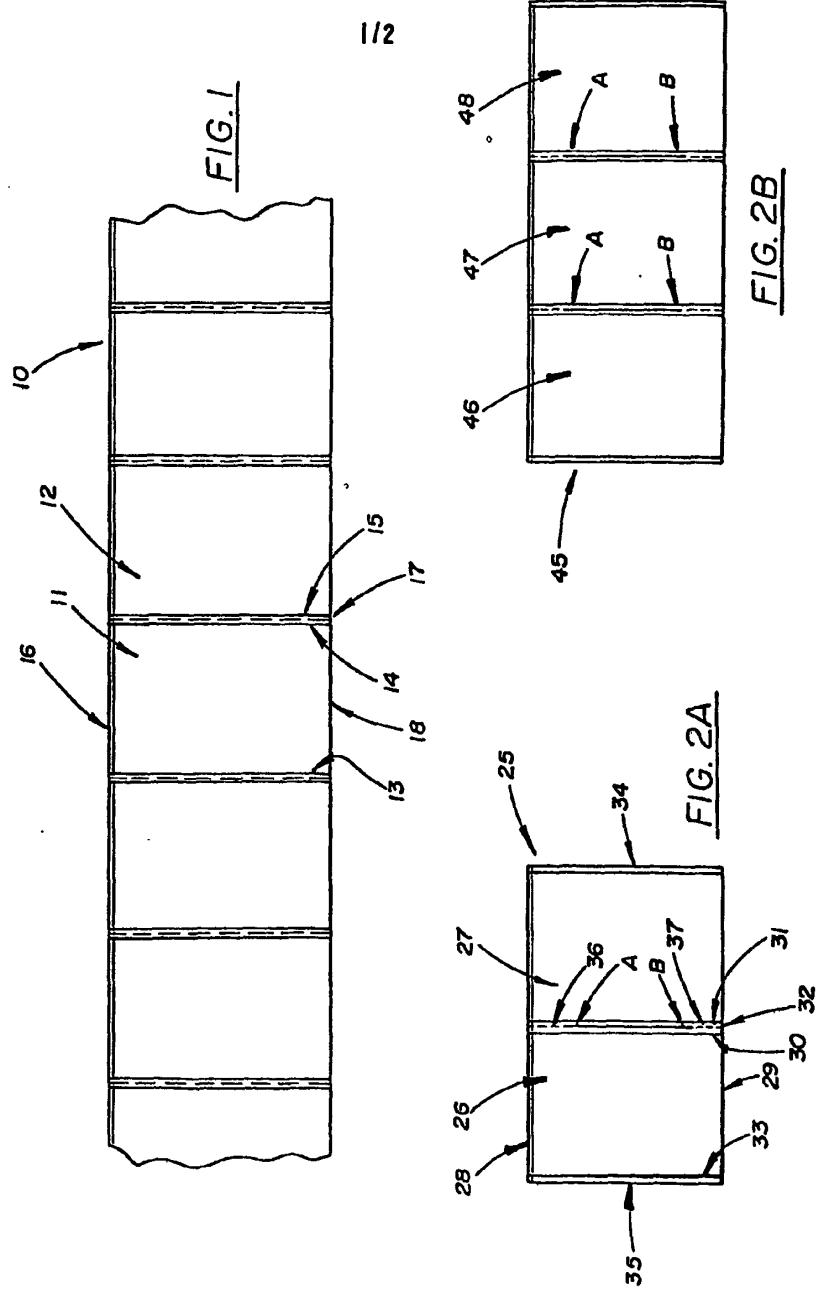


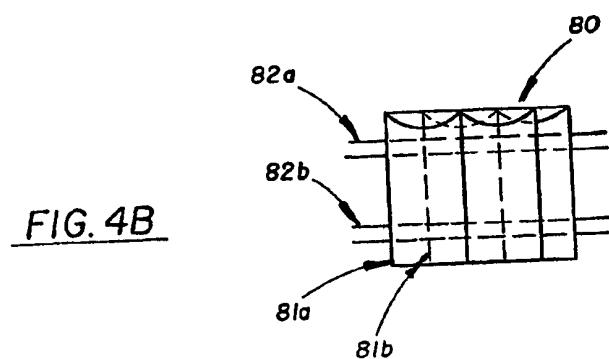
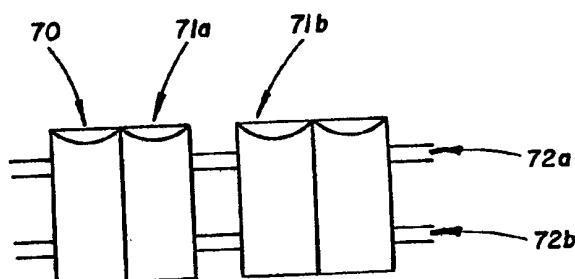
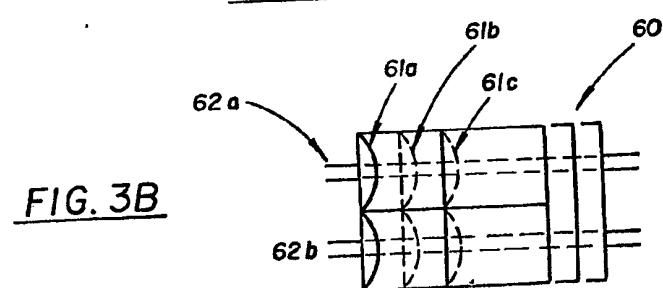
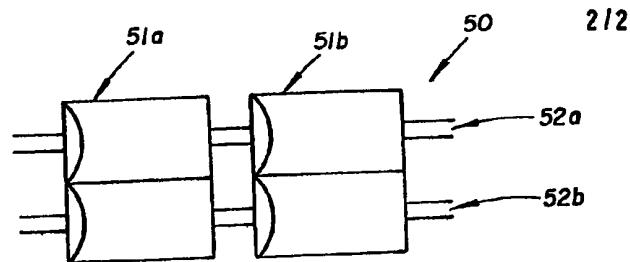
FIG. 3A

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SPECIFICATION
Taped multibag

BACKGROUND OF THE INVENTION

The invention relates generally to a series of packaging bags on a carrier which, in use, are sequentially advanced to a loading station. More particularly, the invention relates to a series of taped, imbricated bags which is fed to a taped bag loader.

In the field of packaging articles such as food products, it is known to load the products into plastic bags, and then to seal the bag openings. It is also known to carry out the sealing operation in a vacuum chamber where the residual atmosphere within the bag can be withdrawn and the package sealed under vacuum conditions in order to avoid deterioration of the food product in the sealed bag. It is known to load product articles into packaging bags, made of flexible heat shrinkable film material, by supplying bags to a bag loader, in the form of a continuous chain of discrete bags carried releasably on adhesively-coated support tapes. Articles to be packaged are situated at a loading station typically by feeding on a conveyor belt into a guide from which the article is loaded into the leading bag of the chain, after opening of the bag for example by an inflation air jet. The bag loader accepts the bags in shingled or imbricated configuration, and it is then left up to either the operator or some article-advancing means, to remove the top loaded bag from the imbricated bag chain before the next successive bag can be inflated and loaded. Supplying the bags in imbricated configuration in a taped chain offers considerable advantages over supplying the bags one at a time to the loading equipment.

The present invention aims to provide a packaging system which is capable of more rapid and economic operation for loading articles into bags which are fed to a loading station in the form of a sequence of bags. Such system is intended to enable the packaging operation to be speeded up in the vacuumizing and sealing steps as well. U.S. Patents 3,161,347 and 3,331,182 disclose typical bag loading processes and apparatus and illustrate the use of a chain of bags in imbricated form supported on a continuous support member so that the imbricated bags arrive at a loading station where the uppermost bag is pneumatically inflated and has a product article placed therein, after which the bag is removed from its elongate support member and delivered ready for subsequent advance to a bag closing station.

Of general interest is the disclosure of U.K. Patent Application 2,078,654A for "Loading Plastic Bags For Packaging Purposes" published January 13, 1982, directed to a packaging process that utilizes a chain of side-sealed packaging bags with the mouths of the bags facing laterally of the chain of bags. Several of the bags are loaded in a batch, and the bags are subsequently closed in batch-wise fashion. Of general interest are the disclosures of U.S.

65 Patents 3,587,843; 3,587,844; and 3,587,845 for "Package Of Bags" issued June 28, 1971 to Wing, directed to a chain of imbricated bags connected together and in one embodiment being supported by two longitudinal strands of tape.

70 Of general interest is the disclosure of U.S. Patent 3,507,090 issued April 21, 1970 to D'Angelo, directed to apparatus for filling a series of long open-ended bags affixed to a shingle strip with each bag over-lying the open end of the next bag.

75 Of general interest is the disclosure of U.S. Patent 2,653,752 issued September 29, 1953 to Vogt, directed to apparatus for feeding bags in succession in an upright position to and from a filling mechanism, the bags being connected together in a chain by two or more tapes serving as the means for advancing the bags.

SUMMARY OF THE INVENTION

The present invention is directed to multibags on a carrier which may be handled essentially as a single bag upon sequential presentation to a bag loader thereby multiplying output from the loader. This handling advantage is also realized in subsequent vacuumizing and sealing operations, further enhancing productivity.

Accordingly, there is provided a series of packaging bags, comprising a plurality of multiple-bag units, each including a separable chain of side-sealed bags, said plurality being sequentially arranged on and removably affixed to a carrier.

Preferably, said multiple-bag units are imbricated longitudinally on carrier tape and said bags are separable by lines of perforation.

Also, there is provided a method of packaging, comprising providing a series of multiple-bag units, each including a separable chain of side-sealed bags, said plurality being sequentially arranged on and removably affixed to a carrier; feeding said series of multiple-bag units to a loading station; and as each unit is presented at the loading station, inflating the bags of each presented unit at the loading station; loading the bags of each presented unit with product; and advancing each said unit to a bag closing station.

110 BRIEF DESCRIPTION OF THE DRAWINGS

Further details are given below with reference to the embodiments shown in the drawings wherein;

FIG. 1 shows a conventional perforated series of side-sealed bags;

FIGS. 2A, B show representative multibag units having two and three component bags, respectively.

FIG. 3A shows partially a series of multiple-bag units serially arranged on longitudinal strands of carrier tape;

FIG. 3B shows partially a series of multiple-bag units imbricated longitudinally on carrier tape;

FIG. 4A shows partially a series of multiple-bag units serially arranged on transverse carrier tape; and

FIG. 4B shows partially a series of multiple-bag

units imbricated transversely on carrier tape.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring specifically to the drawings, in FIG. 1 a conventional series 10 of perforated side-sealed plastic bags is shown, for example being of indefinite length and made of polyethylene. Bags within the series, such as bags 11 and 12, are separated by a line of perforation 17, with side-seals 14 and 15 on either side of perforation 17. Bag 11, for example, is defined by side-seals 13 and 14, fold line 18 and extended lip opening 16. Such a series of bags may be made by conventional techniques, for example, first extruding a plastic tube, then collapsing said tube to a lay-flat configuration possibly following orientation, cutting along one fold line to form an extended lip opening, and repeatedly forming transverse seals, such as by impulse welding, and lines of perforation at regular intervals along the collapsed tube to create a series of side-sealed bags which open laterally and which are separated by lines of perforation. Such a series of side-sealed bags is the starting material for utilization of the present invention.

In general, it is contemplated that component bags within the feed series are separable, i.e. a bag may be readily separated from an adjacent bag by pulling along a predetermined line of weakness. Most preferably, such lines of weakness are lines of perforation, as discussed above. Another mode, for example, includes scored lines, with or without one side of the series being scored completely through.

In FIGS. 2A and 2B, there are shown representative examples of multibag units, for definitional purposes. In FIG. 2A, there is shown a two bag multibag unit 25, having component bags 26 and 27 which have been jointly separated from a chain of perforated side-sealed bags at separated lines of perforations 34 and 35. Bag 26, for example, is as discussed above having extended lip opening 28, fold 29, and side-seals 30 and 33. At the junction between the two bags making up the multibag unit there are side-seals 30 and 31 juxtaposed about line of perforation 32. Line of perforation 32, however, is partially separated as indicated between points A and B. Preferably, partial separation between bags within a multibag unit is symmetrical with respect to the length of the bags as shown. Optionally, the partial separation may be asymmetric even to the extent that partial separation begins at an edge of the multibag unit. Thus, in the example shown, bags 26 and 27 are held together by perforation segments 36 and 37 to unify the multibag unit. In FIG. 2B, there is shown a three bag multibag unit 45, having component bags 46, 47 and 48. Individual bags within unit 45 have been partially separated along their respective lines of perforation as indicated by segments AB as discussed in connection with FIG. 2A. Multibag units of any number of bags may be made.

The bags are used preferably by longitudinally

65 imbricating on carrier tape so that a series of such taped multibags may be fed to a conventional taped bag loader with the advantage that a multibag unit may be handled during loading, vacuumizing and sealing essentially as a single

70 bag, thereby correspondingly multiplying output from the packaging operation. Optionally, the sealing operation may include trimming off excess material beyond the outermost seals of each unit. Following sealing of the loaded bags, the

75 individual bags within a unit may be easily separated due to the pre-existing partial separation along the lines of perforation delimiting the bags within a multibag unit. Component bags may easily be separated from their respective 80 multibags at any time after the packaging operation as desired, for example immediately after vacuumizing and sealing or during marketing by the retailer or later by the end user.

In FIGS. 3A through 4B, various modes of the

85 invention are shown. In FIG. 3A, part of a series 50 of multibags on carrier tape is shown. Multibags 51A and 51B, being two bag units for example, are arranged sequentially on carrier tapes 52A, B in longitudinal fashion, i.e. the carrier tape extends

90 lengthwise of the multibag units. In use, the series is fed to a conventional taped bag loader so that each multibag unit is presented for loading essentially as a prior art single bag, and then, after loading, removed from the carrier tape and passed

95 to a closing station. Generally, any number of carrier tapes are contemplated, as may be needed for a given application; however, 2 to 5 carrier tapes are preferred, with 2 tapes being most preferred for usual applications. In FIG. 3B, part of

100 a multibag series 60 is shown having representative multibags 61A, B, C imbricated or shingled on longitudinal carrier tapes 62A, B with the leading multibag unit being the uppermost unit.

105 In FIG. 4A, part of a series 70 of multibag units is shown taped laterally, i.e. representative multibag units 71A, B are sequentially and removably affixed to carrier tapes 72A, B which extend widthwise of the bags. Loadings of the

110 bags with product is conducted transverse of the forward feed direction of the carrier tape. In FIG. 4B, part of a series 80 of multibags imbricated on lateral carrier tape is shown. Representative, multibags 81A, B are imbricated on carrier tapes 82A, B with the leading multibag 81A being uppermost.

Although the present invention has been described in conjunction with preferred embodiments, it is to be understood that 120 modifications and variations may be utilized without departing from the principles and scope of the invention as defined by the following claims:

CLAIMS

1. A series of packaging bags, comprising a plurality of multiple-bag units, each including a separable chain of side-sealed bags, said plurality being sequentially arranged on and removably affixed to a carrier.

2. A series of packaging bags according to claim 1, wherein said carrier is oriented longitudinally with respect to said bags.

3. A series of packaging bags according to claim 1, wherein said carrier is oriented laterally with respect to said bags.

4. A series of packaging bags according to any one of claims 1 to 3, wherein said units are imbricated on said carrier with the leading unit being uppermost.

5. A series of packaging bags according to any one of claims 1 to 4, wherein said carrier is tape and said bags are separable by lines of perforation.

6. A series of packaging bags according to claim 5, wherein the perforations between component bags of each multibag unit are partially separated.

7. A series of packaging bags according to claim 6, wherein the extent of partial separation of said perforations is interior of the width of said bags.

8. A series of packaging bags according to claim 6, wherein the extent of partial separation of said perforations begins at an edge of said bags.

9. A series of packaging bags according to claim 5, or to any one of claims 6 to 8 when appended thereto, wherein the number of carrier tapes is in the range of 2 to 5.

10. A series of packaging bags according to claim 9, wherein the number of carrier tapes is 2.

11. A series of packaging bags, comprising a plurality of multiple bag units, each including a perforated chain of side-sealed bags, said plurality being imbricated longitudinally on and removably affixed to carrier tape, further provided that perforations between bags within a unit are partially separated.

12. A series of packaging bags substantially as hereinbefore described with reference to, and as illustrated in, the accompanying drawings.

13. A method of packaging, comprising:

- (a) providing a series of multiple-bag units, each including a separable chain of side-sealed bags, plurality being sequentially arranged on and removably affixed to a carrier.
- (b) feeding said series of multiple-bag units to a loading station; and, as each unit is presented at the loading station, repeatedly
- (c) inflating the bags of said presented unit at the loading station;

(d) loading the bags of said presented unit with product; and

(e) advancing said unit to a bag closing station.

14. A method of packaging according to claim 13 further comprising the step of;

- (f) unitarily vacuumizing and sealing each said loaded unit.

15. A method of packaging according to claim 14, further comprising: the step of

16. A method of packaging, substantially as hereinbefore described with reference to the accompanying drawings.

65 New claims or amendments to claims filed on 18 Nov. 83
Superseded claims 1, 6, 11 and 13
New or amended claims:

1. A series of packaging bags, comprising a plurality of discrete multiple-bag units, each including a separable chain of side-sealed bags, said discrete units being sequentially arranged on and removably affixed to an elongate carrier.

6. A series of packaging bags according to claim 5, wherein the perforations between component bags of each discrete multibag unit are partially separated.

11. A series of packaging bags, comprising a plurality of discrete multiple bag units, each including a perforated chain of side-sealed bags, said discrete units being imbricated longitudinally on and removably affixed to carrier tape, further provided that perforations between bags within a said discrete unit are partially separated.

13. A method of packaging, comprising:

- (a) providing a series of discrete multiple-bag units, each including a separable chain of side-sealed bags, said discrete units being sequentially arranged on and removably affixed to an elongate carrier,
- (b) feeding said series of discrete multiple-bag units to a loading station; and, as each unit is presented at the loading station, repeatedly
- (c) inflating the bags of said presented unit at the loading station;

(d) loading the bags of said presented unit with product; and

(e) advancing said discrete unit to a bag closing station.